



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,876	12/29/2000	Hideo Itoh	201419US0X	6748

7590

10/03/2002

OBLON, SPIVAK, McCLELLAND, MAIER & NEUSTADT, P.C.
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22202

EXAMINER

CHEVALIER, ALICIA ANN

ART UNIT	PAPER NUMBER
----------	--------------

1772

DATE MAILED: 10/03/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/749,876

Applicant(s)

ITOH ET AL.

Examiner

Alicia Chevalier

Art Unit

1772

-- **The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 5,8,10,11,14,15,20,23,25,26 and 29-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,7,9,12,13,16-19,21,22,24,27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I and species 1b, 2c, 3f, and 4h, claims 1-4, 6, 7, 9, 12, 13, 16-19, 21, 22, 24, 27, and 28 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that there is no evidence of record to show that the claimed product can be made by this alleged process or how the alleged process is materially different from the claimed process. Applicant further argues that the Office has not shown that a burden exists in searching all the claims of the present application. This is not found persuasive because the examiner has met the burden required by the MPEP § 603 for proper restriction.

There are two criteria for a proper requirement for restriction between patentably distinct inventions:

- (A) The inventions must be independent (see MPEP § 802.01, § 806.04, § 808.01) or distinct as claimed (see MPEP § 806.05 - § 806.05(i)); and
- (B) There must be a serious burden on the examiner if restriction is required (see MPEP § 803.02, § 806.04(a) - § 806.04(i), § 808.01(a), and § 808.02).

For the first requirement, the inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). As stated before, in the instant case the product as claimed can be made by a materially different process such as forming the openings by discontinuously adhering a layer.

Art Unit: 1772

Applicant claims forming the openings by a dry etching method which is a materially different process than discontinuously adhering a layer. As for the second requirement, a burden exists because these inventions have acquired a separate status in the art as shown by their different classification and have acquired a separate status in the art because of their recognized divergent subject matter and the search required for Group I is not required for Group II.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4, 6, 7, 9, 12, 13, 16-19, 21, 22, 24, 27, and 28 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the arrangement of the plurality of thin-film layers of photocatalytic material, the plurality of thin-film layers of support material, and the vacant layers. For example, are all the layers of photocatalytic material next to each other, do the layers alternate with the layers of support material, are they side by side, stacked, etc. The scope claim 1's structure is unclear in view of the specification and the drawings. The drawings show the

Art Unit: 1772

relationship of the layers as alternating, and further more not as continuous films. These features are not being claimed.

The term "vacant layer" in claim 1 is unclear which renders the claims vague and indefinite. It is unclear from the claim language, specification, and drawings what constitutes a "vacant layer." The claim language makes it sound like a physical layer that exists in the member, but the drawing appear to be pointing to spaces between adjacent layers of photocatalytic material and next to the support layer. For all intents and purposes since applicant has not defined the relationship between the three layers the vacant layer reads on space around the member and is taken as such for purposes of examination.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the arrangement of thin-film layers of photocatalytic material and the vacant layers. As stated before it is unclear where in the structure these layers are. Is the vacant layer the space above the photocatalytic material with openings and that's how they are capable of being in communication?

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the arrangement of the plurality of thin-film layers of photocatalytic material, the plurality of thin-film layers of support material, and the vacant layers. It is unclear how that vacant layers, which appear from the specification and drawings to

Art Unit: 1772

nothing more than space, are maintained by the thin-film layers of photocatalytic material and thin-film layers of support material with out knowing their structural relationship to each other. Furthermore, it is unclear how empty space can be circular, elliptical, or polygonal. Is applicant trying to claim the thin-film layers of photocatalytic material and thin-film layers of support material have holes/grooves in them in those configurations?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 7, 9, 12, 13, 16-19, 21, 22, 24, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Chattha et al. (5,102,853).

Chattha discloses a three-way catalyst for automotive emission control comprising an alumina substrate, a plurality of discontinuous palladium layers (support material) and a plurality of titanium dioxide (photocatalytic material), see figure 3. As seen by figure three the layers are spaced by openings between the layers and the surface area of the layers becomes larger when going from the surface toward the bottom layer.

6. Claims 1, 3, 4, 12, 16, 18, 19 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Hums (4,847,234).

Art Unit: 1772

Hums discloses a layer of titanium dioxide (photocatalytic material), ceramic composition (support material), a metal plate (substrate), a ceramic composition (support material), and a layer of titanium dioxide (photocatalytic material), see the figure.

7. Claims 1, 2, 4, 6, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ford et al. (3,931,049).

Ford discloses a catalyst comprising a copper layer (support material), a nickel layer (photocatalytic material), a copper layer (support material), and substrate, a copper layer (support material), a nickel layer (photocatalytic material), and a copper layer (support material) (figure 3). Figure 7 shows that the catalyst may comprise polygonal openings.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okajima et al. (4,695,301) discloses a similar catalyst.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia Chevalier whose telephone number is (703) 305-1139. The Examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:00 p.m. The Examiner can also be reached on alternate Fridays.


If attempts to reach the Examiner are unsuccessful, the Examiner's supervisor, Harold Pyon can be reached by dialing (703) 308-4251. The fax phone number for the organization official non-final papers is (703) 872-9310. The fax number for after final papers is (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose phone number is (703) 308-0661.

ac

9/26/02




HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772 9/28/02